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8 IN THE UNITED STATES DISTRICT COURT
9 FOR THE NORTHERN DISTRICT OF CALIFORNIA
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11 GEERTSON SEED FARMS, et al.,

No. C 06-01075 CRB

12 Plaintiffs,

MEMORANDUM AND ORDER

13 v.

14 MIKE JOHANNNS, Secretary of the United
15 States Department of Agriculture, et al.,

16 Defendants.
_____ /

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18 In this lawsuit plaintiff alfalfa growers along with the Sierra Club and other farmer
19 and consumer associations challenge the Department of Agriculture's decision to deregulate
20 alfalfa genetically engineered to resist the herbicide glyphosate, the active ingredient in
21 RoundUp ("Roundup Ready alfalfa"). Plaintiffs bring their claims pursuant to the National
22 Environmental Policy Act ("NEPA"), the Endangered Species Act ("ESA"), and the Plant
23 Protection Act ("PPA"). Now pending before the Court are the parties' cross-motions for
24 summary judgment. The motions raise a close question of first impression: whether the
25 introduction of a genetically engineered crop that might significantly decrease the availability
26 or even eliminate all non-genetically engineered varieties is a "significant environmental
27 impact" requiring the preparation of an environmental impact statement, at least when it
28 involves the fourth largest crop in the United States.

BACKGROUND

The federal Plant Protection Act gives the Secretary of the United States Department of Agriculture (“USDA”) the authority to adopt regulations preventing the introduction and dissemination of plant pests. 7 U.S.C. § 7711(a); Center for Food Safety v. Johanns, 451 F.Supp.2d 1165, 1176 (D. Haw. 2006). Pursuant to this authority, the USDA, through the Animal and Plant Health Inspection Service (“APHIS”), regulates “organisms and products altered or produced through genetic engineering that are plant pests or are believed to be plant pests.” 7 C.F.R. § 340.0(a)(2) n.1. Such products/organisms are known as “regulated articles.” APHIS originally considered Roundup Ready alfalfa a regulated article; as such, it was unlawful for any person to introduce the alfalfa without first obtaining permission from APHIS. Id.

Any person may submit a petition seeking a determination that a regulated article does not present a plant pest risk and therefore should not be regulated. 7 C.F.R. § 340.6. In May 2003, Monsanto, the manufacturer of Roundup, submitted a petition requesting nonregulated status for Roundup Ready alfalfa, designated as event J101 and J163. Administrative Record (“AR”) 5482. Roundup Ready alfalfa is engineered to be glyphosate-tolerant by inserting a gene that codes for the enzyme 5-enolpyruvylshikimate-3-phosphate synthase into the alfalfa genome. AR 5501.

APHIS had several possible responses: it could approve the petition in whole, approve the petition in part, or deny the petition. AR 5503. If it denied the petition, commercial-scale production of Roundup Ready alfalfa would continue to be precluded, although the plant could still be grown in field trials, as it has since 1998. AR 5503. APHIS could also determine that Roundup Ready alfalfa poses no significant risk in certain geographic areas, but a significant risk in others, and therefore approve the petition in part; that is, approve the petition with a geographic limitation on where the genetically engineered alfalfa could be grown. AR 5504. Finally, APHIS could approve the petition in whole, which means that Roundup Ready alfalfa would no longer be subject to USDA regulation. AR 5505.

1 Before deciding Monsanto's petition, APHIS prepared an Environmental Assessment
2 ("EA") and took public comments on the EA and the petition for deregulation. Of the 663
3 comments received by the agency, 520 opposed deregulation. AR 5487.

4 One of the primary objections raised is that gene transmission may occur between
5 glyphosate tolerant alfalfa and conventional and organic alfalfa, that is, that conventional and
6 organic alfalfa will become "contaminated" with the engineered gene that makes Roundup
7 Ready alfalfa tolerant to glyphosate. Such gene transmission is possible because alfalfa is
8 pollinated by bees "and so the potential exists to move pollen from the glyphosate tolerant
9 crop to hay and seed fields, as well as wild populations of alfalfa." AR 5488. Indeed, it is
10 undisputed that insect pollination for alfalfa can occur up to at least two miles from the
11 pollen source. Id. Farmers complained to APHIS that if Roundup Ready alfalfa is
12 deregulated they will no longer be able to market their products as "organic," or at least as
13 non-genetically engineered, and that this "contamination" will also impact those who sell
14 organic livestock or livestock that is not fed any genetically engineered foods. AR 5488,
15 5491, 5495. In addition, 75 percent of the alfalfa exported from the United States (five
16 percent of the alfalfa market) is exported to Japan and Japan does not permit the import of
17 glyphosate tolerant alfalfa; thus, the introduction of Roundup Ready alfalfa might also
18 impact the export market. AR 5487.

19 Commentators also expressed concern that the deregulation of Roundup Ready alfalfa,
20 and the concomitant increase in the use of Roundup, will cause the development of
21 additional glyphosate-resistant weeds, as well as a dramatic increase in the amount of
22 Roundup used in the environment.

23 Nonetheless, in June 2005, APHIS issued a Finding of No Significant Impact
24 ("FONSI") and approved Monsanto's deregulation petition in whole; that is, the agency
25 concluded that Roundup Ready alfalfa should be deregulated and sold without direct
26 regulation by the USDA. AR 5485-5526.

27 The FONSI acknowledges that once Roundup Ready alfalfa is deregulated, it will not
28 be subject to any "isolation distances;" that is, it will not be required to be grown more than

1 two miles from conventional or organic alfalfa crops. AR 5488; see also AR 5495 (“If
2 APHIS grants non-regulated status to a transgenic events, APHIS does not have any further
3 regulatory authority over this particular transgenic event”). APHIS nevertheless concluded
4 that the risk of gene transmission is not significant because “organic production operations
5 must develop and maintain an organic production system plan that outlines the steps it will
6 take to avoid cross pollination from neighboring operations.” AR 5488. In other words, it
7 would be “up to the individual organic seed or hay grower to institute those procedures that
8 will assure” that their crops will not include any genetically engineered alfalfa. AR 5491.
9 APHIS also noted that the states would still have the authority to establish some type of
10 production zone. AR 5495. As for exports to Japan, APHIS concluded, without elaboration,
11 that “[b]y employing reasonable quality control, it is highly unlikely that the level of
12 glyphosate tolerant alfalfa will exceed 1% in conventional alfalfa hay” and that since Japan
13 allows one percent of exports of a crop to contain genetically modified product, exports to
14 Japan would not be affected. AR 5488.

15 In the EA, APHIS concluded that organic farmers and farmers who otherwise do not
16 want to grow genetically engineered alfalfa will not be significantly impacted by the
17 commercial use of Roundup Ready alfalfa because (1) non-genetically engineered alfalfa will
18 “likely still be sold and available to those who wish to plant it;” and (2) farmers purchasing
19 seed will know what they are purchasing because the seed will be labeled as glyphosate
20 tolerant. AR 5511.

21 APHIS agreed with the objectors that the deregulation of Roundup Ready alfalfa
22 could lead to the development of additional glyphosate-resistant weeds, but reasoned that this
23 impact was not significant because weed species have developed resistance to every widely
24 used herbicide; alternative herbicides are available to minimize the problem; and, in any
25 event, “good stewardship may be the only defense against this potential problem.” AR 5492.

26 Plaintiffs now challenge APHIS’s decision to deregulate Roundup Ready alfalfa.
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DISCUSSION

I. NEPA

NEPA “requires a federal agency such as [APHIS] to prepare a detailed EIS for all ‘major Federal actions significantly affecting the quality of the human environment.’” Blue Mountains Biodiversity Project v. Blackwood, 161 F.3d 1208, 1211-12 (9th Cir. 1998) (quoting 42 U.S.C. § 4332(2)(C)). “NEPA ensures that the agency . . . will have available, and will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to the larger [public] audience.” Id. (internal quotation marks and citation omitted).

Accordingly, “[a] threshold question in a NEPA case is whether a proposed project will ‘significantly affect’ the environment, thereby triggering the requirement for an EIS.” Id. “Where an EIS is not categorically required, the agency must prepare an Environmental Assessment to determine whether the environmental impact is significant enough to warrant an EIS.” Ocean Advocates v. U.S. Army Corps of Engineers, 402 F.3d 846, 863 (9th Cir. 2005). “An EA is a concise public document that briefly provide[s] sufficient evidence and analysis for determining whether to prepare an EIS or a finding of no significant impact.” Blue Mountains Biodiversity Project, 161 F.3d at 1212.

Here, APHIS prepared an EA and, after receiving public comment, issued a finding of no significant impact and approved the deregulation of Roundup Ready alfalfa. See Anderson v. Evans, 371 F.3d 475, 488 (9th Cir. 2004) (if an EA results in a “finding of no significant impact”—known as a FONSI--the agency need not prepare an environmental impact statement). Plaintiffs contend that APHIS is required to prepare an EIS.

A. Standard of Review

The Court must determine whether APHIS’s “decision was based on consideration of the relevant factors, or whether its actions were arbitrary, capricious, an abuse of discretion or otherwise not in accordance with the law.” Blue Mountains Biodiversity Project, 161 F.3d at 1211 (internal quotation marks and citation omitted). “In short, [the Court] must ensure that the agency has taken a ‘hard look’ at the environmental consequences of its proposed

action.” Id. “A hard look includes considering all foreseeable direct and indirect impacts.” Earth Island Inst. v. U.S. Forest Serv., 442 F.3d 1147, 1159 (9th Cir. 2006) (internal quotation marks and citation omitted). “An agency’s decision not to prepare an EIS will be considered unreasonable if the agency fails to supply a convincing statement of reasons why potential effects are insignificant.” Blue Mountains Biodiversity Project, 161 F.3d at 1211 (internal quotation marks and citation omitted); see also Ocean Advocates, 402 F.3d at 865 (“[T]he agency must put forth a ‘convincing statement’ of reasons that explain why the [agency action] will impact the environment no more than insignificantly”). “The statement of reasons is crucial to determining whether the agency took a ‘hard look’ at the potential environmental impact of a project.” Blue Mountains Biodiversity Project, 161 F.3d at 1212 (internal quotation marks and citation omitted).

B. Analysis

“[A]n EIS *must* be prepared if ‘substantial questions are raised as to whether a project may cause significant degradation of some human environmental factor.’” Idaho Sporting Cong. v. Thomas, 137 F.3d 1146, 1149 (9th Cir. 1998) (quoting Greenpeace Action v. Franklin, 14 F.3d 1324, 1332 (9th Cir. 1992)). “Thus to prevail on a claim that [APHIS] violated its statutory duty to prepare an EIS, a plaintiff need not show that significant effects will in fact occur. It is enough for the plaintiff to raise substantial questions whether a project may have a significant effect on the environment.” Blue Mountains Biodiversity Project, 161 F.3d at 1212 (internal quotation marks and citation omitted). “Put another way, a proposal can be considered controversial if substantial questions are raised as to whether a project may cause significant degradation of some human environmental factor.” Anderson, 371 F.3d at 489.

“In determining whether a federal action requires an EIS because it significantly affects the quality of the human environment, an agency must consider what ‘significantly’ means.” Ocean Advocates, 402 F.3d at 865. “Significantly,” has two components: context and intensity. Id. (citing 40 C.F.R. § 1508.27). “Context refers to the setting in which the proposed action take place.” Id. (citing 40 C.F.R. § 1508.27(a)). “Intensity means ‘the

1 severity of the impact.” Id. (citing 40 C.F.R. § 1508.27(b)).

2 Several factors must be considered in evaluating intensity, including the “degree to
3 which the effects on the quality of the human environment are likely to be highly
4 controversial;” “[t]he degree to which the possible effects on the human environment are
5 highly uncertain or involve unique or unknown risks;” and “[t]he degree to which the
6 proposed action affects public health and safety.” 40 C.F.R. § 1508.27(b)(2), (4), (6).

7 The context of the inquiry in this case is undisputed. Alfalfa is the fourth most widely
8 grown crop in the United States. The bulk of alfalfa seed (as opposed to alfalfa forage) is
9 grown in limited geographic areas within a few states. California is the largest producer of
10 alfalfa seed, and California, Idaho, Washington and Nevada together produce 85 percent of
11 all domestic alfalfa seed. In this context, plaintiffs identify what they believe are several
12 significant environmental impacts that will be caused by Roundup Ready alfalfa, or that at
13 least may be caused by the deregulation of the genetically engineered alfalfa.

14 **1. Gene transmission to non-genetically engineered alfalfa**

15 Plaintiffs contend that one significant environmental impact resulting from the
16 introduction of Roundup Ready alfalfa is that genetically engineered alfalfa will modify non-
17 genetically engineered alfalfa such that it, too, will contain the gene that confers tolerance to
18 the herbicide glyphosate. Plaintiffs label such effect “biological contamination.” Biological
19 contamination can occur through pollination of non-genetically engineered plants by
20 genetically engineered plants or by the mixing of genetically engineered seed with natural, or
21 non-genetically engineered seed.

22 Alfalfa seeds are pollinated by bees and, as a result, there is a realistic potential for
23 contamination from seed fields to nearby seed fields; indeed, APHIS admits that insects
24 pollinate alfalfa up to two miles from the pollen source. AR 5488. Such gene transmission
25 is especially likely in this context given the geographic concentration of alfalfa seed
26 production. Once the gene transmission occurs and a farmer’s seed crop is contaminated
27 with the Roundup Ready gene, there is no way for the farmer to remove the gene from the
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1 crop or control its further spread. AR 4287. And alfalfa is a perennial crop; the crop is only
2 replanted every three to four years.

3 Plaintiffs complain that the “contamination” of organic and conventional crops with
4 the genetically engineered gene will have negative economic and socioeconomic effects on
5 farmers. Organic farmers will no longer be able to market their seed as non-genetically
6 engineered, rendering their crops less valuable; consumers pay a premium for organic and
7 non-genetically engineered food. Similarly, organic livestock farmers will have a more
8 difficult time purchasing non-genetically engineered alfalfa as food for livestock and thus
9 will be unable to market their livestock as organic or at least fed with non-genetically
10 engineered food. All of these farmers may be required to test their crops and livestock for
11 traces of the genetically-engineered alfalfa. Even non-organic farmers who want to raise
12 genetically-engineered free plants and livestock will be impacted.

13 APHIS acknowledges that once Roundup Ready alfalfa is deregulated the government
14 will not be able to impose isolation distances on the growers of genetically engineered
15 alfalfa; in other words, it cannot ensure that farmers using the genetically engineered seed
16 will be more than two miles away from seed farmers who do not wish to grow engineered
17 alfalfa. AR 5488. APHIS nonetheless concluded that the introduction of Roundup Ready
18 alfalfa will have no significant environmental impact, reasoning as follows:

19 [T]he National Organic Program, which is administered by USDA’s
20 Agricultural Marketing Service, requires organic production operations to have
21 distinct, defined boundaries and buffer zones to prevent unintended contact
22 with prohibited substances, such as modified genes, from adjoining land that is
23 not under organic management. However, the determination of the size of the
buffer zones is left up to the organic producer and the certifying agent on a
case-by-case basis. Furthermore, organic production operations must develop
and maintain an organic production system plan that outlines the steps it will
take to avoid cross pollination from neighboring operations.

24 AR 5488, 5510. It also reasoned that federal organic standards do not require the testing of
25 inputs or products for genetically engineered genes and that the unintentional presence of the
26 engineered genes will not “necessarily” constitute a violation of national organic standards.
27 AR 5511.

1 In the EA, APHIS concluded, without further elaboration, that non-genetically
2 engineered alfalfa seed “will likely still be sold and will be available to those who wish to
3 plant it,” and that genetically engineered seed will be marketed and labeled as glyphosate
4 tolerant so farmers will know when they are purchasing Roundup Ready alfalfa seed. AR
5 5511. APHIS also found that gene transmission is not likely to occur with forage as opposed
6 to seed crops because forage fields are typically harvested before the seed is set and allowed
7 to mature. Id.

8 APHIS’s reasons for concluding that the potential for the transmission of the
9 genetically engineered gene is not significant are not “convincing” and do not demonstrate
10 the “hard look” that NEPA requires. See Blue Mountains Biodiversity Project, 161 F.3d at
11 1211. APHIS did not conclude that gene transmission would not occur; indeed, an internal
12 APHIS email acknowledges that “[i]t may be hard to guarantee that seeds or sprouts are GE
13 free.” AR 2816. Instead, it in effect concluded that whatever the likelihood of gene
14 transmission, such impact is not significant because it is the organic and conventional
15 farmers’ responsibility to ensure that such contamination does not occur. It rested its “no
16 significant impact” decision on this conclusion even though it made no inquiry into whether
17 those farmers who do not want to grow genetically engineered alfalfa can, in fact, protect
18 their crops from contamination, especially given the high geographic concentration of seed
19 farms and the fact that alfalfa is pollinated by bees that can travel more than two miles.
20 Neither the EA nor the FONSI identify a single method that an organic farmer can employ to
21 protect his crop from being pollinated by a bee that travels from a nearby genetically
22 engineered seed farm, even assuming the farmer maintains a “buffer zone.”

23 “Preparation of an EIS is mandatory where uncertainty may be resolved by further
24 collection of data, or where the collection of data may prevent speculation on potential . . .
25 effects. The purpose of an EIS is to obviate the need for speculation by insuring that
26 available data are gathered and implemented prior to the proposed action.” National Parks
27 Conservation Ass’n v. Babbitt, 241 F.3d 722, 732 (9th Cir. 2001) (internal quotation marks
28 and citation omitted). The further collection of data can inform APHIS as to the likely extent

1 of any gene transmission and the realistic measures, if any, that may be taken to prevent or at
 2 least reduce such contamination. Such data is especially important given that one option
 3 APHIS has is to approve Monsanto's "petition with a geographic limitation stipulating that
 4 the Roundup Ready could only be grown without APHIS authorization in certain geographic
 5 areas." AR 5504. APHIS's rejection of this option without making any inquiry into the
 6 extent of likely gene transmission from genetically engineered seed crops to non-engineered
 7 seed crops is arbitrary and capricious; it did not obtain the very information it needs to
 8 determine if such an option is warranted. See Earth Island Institute, 442 F.3d at 1160 ("If an
 9 agency has failed to make a reasoned decision based on an evaluation of the evidence, [a
 10 court] may properly conclude that the agency has acted arbitrarily and capriciously.");
 11 Foundation for N. Am. Wild Sheep v. U.S. Dep't of Agr., 681 F.2d 1172, 1178 (9th Cir.
 12 1982) (holding that agency violated NEPA when its EA "failed to address certain crucial
 13 factors, consideration of which was essential to a truly informed decision whether or not to
 14 prepare an EIS").

15 APHIS's conclusion that forage alfalfa will not be contaminated is also arbitrary and
 16 capricious. APHIS baldly concluded that such gene transmission is not likely because
 17 farmers typically harvest alfalfa forage fields before the seed matures. APHIS failed to
 18 consider, however, that because of weather--which is beyond a farmer's control--a farmer
 19 cannot always harvest his field at the most optimal time. APHIS made no inquiry into how
 20 often farmers are actually able to harvest their forage crop before seeds mature and no
 21 inquiry into the likelihood of gene transmission when they cannot. Without such data,
 22 APHIS's conclusion is arbitrary. See Earth Island Institute, 442 F.3d at 1159 ("A hard look
 23 should involve a discussion of adverse impacts that does not improperly minimize negative
 24 side effects").

25 APHIS's reasoning that farmers will not "necessarily" be prohibited from labeling
 26 their products as organic is wholly inadequate. First, the statement itself is equivocal; even
 27 APHIS is uncertain whether farmers can still label their products organic under the federal
 28 government's organic standards. Second, many farmers and consumers have higher

standards than what the federal government currently permits; to these farmers and consumers organic means not genetically engineered, even if the farmer did not intend for his crop to be so engineered. And, as APHIS acknowledges, many countries, including Japan, do not allow for the importation of genetically engineered alfalfa regardless of what the United States government permits. Third, and most importantly, APHIS's comment simply ignores that these farmers do not want to grow or feed to their livestock genetically engineered alfalfa, regardless of how such alfalfa can be marketed.

APHIS's assertion that exports to Japan will not be harmed because Japan allows one percent of its imported alfalfa to be transgenic and "[b]y employing reasonable quality control, it is highly unlikely that the level of glyphosate tolerant alfalfa will exceed 1% in conventional alfalfa hay," AR 5488, is also not convincing. Neither the EA nor the FONSI contain any reference to any material in support of APHIS's conclusion that gene transmission is "highly unlikely" to occur with "reasonable quality control." APHIS does not identify any "quality control" that will prevent gene transmission between neighboring seed farms. It similarly does not identify any material to support its EA statement that non-genetically engineered alfalfa will "likely still be sold and available to those who wish to plant it." AR 5511. See Blue Mountains Biodiversity Project, 1161 F.3d at 1214 ("The EA contains virtually no reference to any material in support of or in opposition to its conclusions. That is where the Forest Service's defense of its position must be found").

APHIS argues in its brief that the extent of any gene transmission is, in any event, irrelevant because NEPA requires an agency to consider physical environmental impacts, not economic or financial impacts. APHIS overstates the law. To determine whether NEPA requires an agency to consider a particular effect, courts must "look at the relationship between that effect and the change in the physical environment caused by the major federal action at issue." Metropolitan Edison Co. v. People Against Nuclear Energy, 460 U.S. 766, 773 (1983); see also San Luis Obispo Mothers for Peace v. Nuclear Regulatory Comm'n, 449 F.3d 1016, 1029 (9th Cir. 2006) ("[T]he essential analysis must focus on the closeness of the relationship between the change in the environment and the 'effect' at issue") (internal

quotation marks and citation omitted); Ashley Creek Phosphate Co. v. Norton, 420 F.3d 934, 943 (9th Cir. 2005) (“NEPA does not require an agency to assess all impacts of a project, only those that have a ‘reasonably close causal relationship’ with ‘a change in the physical environment’”). Economic effects are relevant “when they are ‘*interrelated*’ with ‘natural or physical environmental effects.’” Ashley Creek Phosphate Co., 420 F.3d at 944 (quoting 40 C.F.R. § 1508.14 (“[E]conomic or social effects are not intended by themselves to require preparation of an environmental impact statement. When an environmental impact statement is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all of these effects on the human environment”))).

Here, the economic effects on the organic and conventional farmers of the government’s deregulation decision are interrelated with, and, indeed, a direct result of, the effect on the physical environment; namely, the alteration of a plant specie’s DNA through the transmission of the genetically engineered gene to organic and conventional alfalfa. APHIS was required to consider those effects in assessing whether the impact of its proposed action is “significant.” And, in fact, APHIS did mention those effects in the FONSI and EA, but, as explained above, its reasons for concluding that the effect on organic and conventional farmers is not significant are not “convincing.”

Finally, the government argues that even if the deregulation of Roundup Ready alfalfa could result in the elimination of all non-genetically engineered alfalfa--in other words, there would be no alfalfa grown in the United States that does not contain the engineered gene that confers tolerance to glyphosate--such a result would still not constitute a significant environmental impact because APHIS has determined that the introduction of that gene to alfalfa is harmless to humans and livestock, that is, it is not toxic or pathogenic. Draft Transcript of January 19, 2007 Hearing at 54-55. APHIS’s position is based on its finding that the engineered gene is similar to another gene already present in non-engineered alfalfa and is the equivalent to a natural enzyme found in both green plants and microorganisms that are common in nature. AR 5482, 5483, 5490-91, 5501-5502, 5491. In sum, APHIS

1 concluded that the engineered enzyme is equivalent in all biological respects to those that are
2 common and harmless in nature and therefore the introduction of that engineered gene into
3 conventional or organic alfalfa is not a significant environmental impact as a matter of law.

4 The Court accepts, as it must, the agency's determination that Roundup Ready alfalfa
5 does not have any harmful health effects on humans or livestock. See Natural Res. Defense
6 Council, Inc. v. EPA, 863 F.2d 1420, 1430 (9th Cir. 1988) ("A reviewing court should be at
7 its most deferential in reviewing an agency's scientific determinations in an area within the
8 agency's expertise"). Public health and safety, however, is only *one* of factors that an
9 agency should consider when determining whether a major federal action may have a
10 significant environmental impact. 40 C.F.R. § 1508.27(b). The government does not cite
11 any case, and the Court is aware of none, which holds that an impact is not significant simply
12 because a federal agency determines that the major federal action does not jeopardize the
13 public's health and safety. The paucity of caselaw is unsurprising given that one of
14 Congress's express goals in adopting NEPA was to "attain the widest range of beneficial
15 uses of the environment without degradation, risk to health and safety, *or other undesirable*
16 *and unintended consequences*." 42 U.S.C. § 4331(b)(3) (emphasis added). A federal action
17 that eliminates a farmer's choice to grow non-genetically engineered crops, or a consumer's
18 choice to eat non-genetically engineered food, is an undesirable consequence: another NEPA
19 goal is to "maintain, wherever possible, an environment which supports diversity and variety
20 of individual choice." 42 U.S.C. § 4331(b)(4).

21 To put it another way, if the government's action could eliminate all alfalfa, there
22 would be no dispute that such action has a significant environmental impact, even though the
23 primary impact is the economic effect on alfalfa and livestock farmers. For those farmers
24 who choose to grow non-genetically engineered alfalfa, the possibility that their crops will be
25 infected with the engineered gene is tantamount to the elimination of all alfalfa; they cannot
26 grow their chosen crop. The government's apparent belief that the farmers' and consumers'
27 choice is irrational because the engineered gene is similar in all biological respects to a gene
28 found in nature (although never in alfalfa) is beside the point. An action which potentially

1 eliminates or least greatly reduces the availability of a particular plant--here, non-engineered
2 alfalfa--has a significant effect on the human environment. See 40 C.F.R. § 1508.27(b) (“A
3 significant effect may exist even if the Federal agency believes that on balance the effect will
4 be beneficial”).

5 One other point bears mention. At oral argument the Court asked the government
6 why APHIS addressed (albeit inadequately) the economic impact on farmers if it is the
7 agency’s position that, regardless of how much gene transmission occurs, such transmission
8 is insignificant because it is harmless. The government candidly explained that it addressed
9 these possible effects because Roundup Ready alfalfa is the first crop that has been
10 engineered to resist a herbicide “and in which the record suggests that there’s at least a
11 chance that the [genetically engineered] gene could be transmitted.” Draft Transcript of
12 January 19, 2007 Hearing at 53. The government’s response highlights that APHIS is
13 operating in uncharted territory. In light of the Court’s conclusion that the permanent
14 modification of a plant’s genetic makeup through genetic engineering is an effect on the
15 human environment, and the evidence that such transmission can and will occur, and that
16 APHIS did not adequately analyze the extent of such transmission, the possible effects of
17 APHIS’s deregulation decision are “highly uncertain or involve unique or unknown risks.”
18 40 C.F.R. § 1508.27(5).

19 The Court cautions that it is not ruling that Roundup Ready alfalfa is harmful to
20 consumers or livestock. Rather, the significant impact that requires the preparation of an EIS
21 is the possibility that the deregulation of Roundup Ready alfalfa will degrade the human
22 environment by eliminating a farmer’s choice to grow non-genetically engineered alfalfa and
23 a consumer’s choice to consume such food.

24 **2. The development of alfalfa weeds resistant to herbicides**

25 Plaintiffs also complain that the deregulation of Roundup Ready alfalfa will cause
26 Roundup-resistant weeds, and that such an effect is sufficiently significant to require the
27 preparation of an EIS. APHIS acknowledges that the use of Roundup Ready alfalfa may
28 result in the development of Roundup-tolerant weeds. AR 5492. The resistance develops

1 because of the increased use of Roundup on the crops. APHIS found that such a possible
2 impact nevertheless does not warrant the preparation of an EIS because weed species often
3 develop resistance to herbicides and the agricultural community is addressing the issue.
4 “Alternative herbicides and strategies are available that may minimize the problem. Based
5 on the comments, the alfalfa growers and weed scientists understand that good stewardship
6 may be the only defense against this potential problem.” AR 5492

7 APHIS’s reasons for finding the development of glyphosate resistant weeds not to be
8 significant are not convincing. Reasoning that weed species often develop resistance to
9 herbicides is tantamount to concluding that because this environmental impact has occurred
10 in other contexts it cannot be significant. Nothing in NEPA, the relevant regulations, or the
11 caselaw support such a cavalier response.

12 The assertion that “good stewardship” may be the only defense against such weeds is
13 equally unconvincing. Such a conclusion is not the same as a finding that the development
14 of the weeds is not a significant environmental impact. This is especially so given that
15 neither the FONSI nor the EA contain any analysis as to what exactly constitutes good
16 stewardship and how likely it is to be practiced successfully. See Blue Mountains
17 Biodiversity Project, 161 F.3d at 1214. There may be ways to reduce the proliferation of
18 weeds, but if farmers are not engaging (or cannot engage) in those practices, then the
19 availability of those practices does not ameliorate the potential environmental impact.

20 Finally, APHIS failed to evaluate the cumulative impact of the deregulation of
21 Roundup Ready alfalfa. 40 C.F.R. § 1508.7 (“‘Cumulative impact’ is the impact on the
22 environment which results from the incremental impact of the action when added to other
23 past, present, and reasonably foreseeable future actions regardless of what agency (Federal or
24 non-federal) or person undertakes such other actions. Cumulative impacts can result from
25 individually minor but collectively significant actions taking place over a period of time.”) .
26 While alfalfa is the first large scale perennial Roundup Ready crop, APHIS has deregulated
27 other Roundup Ready crops, including corn and soybeans, and other deregulation petitions
28 are pending. While the deregulation of one crop in and of itself might not pose a significant

1 risk for the development of glyphosate resistant weeds, when all the crops are considered
2 cumulatively such a risk may become apparent. There is nothing in the FONSI or EA that
3 suggests APHIS even considered how much Roundup use will increase, or even how much
4 such use has increased since the introduction of the other Roundup Ready crops; to the
5 contrary, the EA specifically states that it “does not address the separate issue of the potential
6 use of the herbicide glyphosate in conjunction with these plants.” AR 5501. APHIS’s failure
7 to consider in the context of the development of Roundup resistant weeds that there are
8 already other Roundup Ready crops on the market, and more crops seeking to enter the
9 market, means that it did not take the “hard look” NEPA requires.

10 **3. Increased use of glyphosate**

11 In a related argument, plaintiffs assert that--even apart from the development of
12 glyphosate-resistant weeds--APHIS failed to consider that the deregulation of Roundup
13 Ready alfalfa will result in the increased use of Roundup, and likewise failed to consider how
14 that increased use of Roundup, perhaps doubling its use on alfalfa fields in California alone,
15 will impact the environment. And, argue plaintiffs, APHIS should have considered this
16 increased use in the context of its deregulation of other Roundup Ready crops; in other
17 words, APHIS must inquire whether the introduction of the many Roundup Ready crops will
18 together increase the use of Roundup and impact the environment.

19 APHIS responds that there are other federal agencies, primarily the Environmental
20 Protection Agency (“EPA”), that are responsible for regulating herbicides and tolerance
21 levels in crops for such chemicals. It also contends that there is no evidence that farmers will
22 misuse Roundup, that is, use it contrary to the manufacturer’s instructions and it notes that
23 Roundup use will replace more toxic herbicides.

24 Since the Court has concluded that APHIS must consider the cumulative impact of
25 increased glyphosate use with respect to the development of glyphosate-resistant weeds,
26 APHIS will have to examine the increased use of glyphosate; thus, the Court declines to
27 specifically rule on this claim. The Court notes, however, that it is unclear from the record
28 whether any federal agency is considering the cumulative impact of the introduction of so

1 many glyphosate resistant crops; one would expect that some federal agency is considering
2 whether there is some risk to engineering all of America's crops to include the gene that
3 confers resistance to glyphosate.

4 **C. Standing**

5 The government contends that plaintiffs lack standing to bring their NEPA claims.
6 While a court must ordinarily address the question of standing first, in this case the question
7 of standing is inextricably intertwined with the merits and the Court's discussion above
8 demonstrates why plaintiffs have standing.

9 Article III standing requires "that the plaintiff show (1) an injury in fact that is both
10 (a) concrete and particularized and (b) actual or imminent, not conjectural or hypothetical;
11 (2) that the injury is fairly traceable to the challenged action of the defendant; and (3) a
12 likelihood that the injury will be redressed by a favorable decision." Ashley Creek
13 Phosphate Co., 420 F.3d at 937.

14 The government argues that plaintiffs have not shown injury in fact for two reasons.
15 First, it repeats its argument that economic interests do not fall "within NEPA's zone of
16 interests." Gov't Reply at 6 (quoting Ashley Creek Phosphate Co., 420 F.3d at 938, 940).
17 As the Court explained, supra, however, economic interests that are interrelated with natural
18 or physical environmental effects fall within NEPA's zone of interests. The alfalfa farmer
19 plaintiffs' potential economic injury arises directly from the environmental impact of
20 APHIS's decision to deregulate Roundup Ready alfalfa. In Ashley Creek, in contrast, the
21 plaintiffs' economic injury arose from increased competition, not from any environmental
22 impact. Id. at 940.

23 Second, the government complains that plaintiffs have not shown a sufficient
24 "geographic nexus" because they do not offer evidence that they farm near a genetically
25 engineered alfalfa crop. The deregulation decision was made only recently, however, and at
26 oral argument plaintiffs explained that the planting of the genetically engineered crop will
27 occur in the spring; thus, it is premature for plaintiffs to show such injury. Plaintiffs need not
28 wait until the genetically engineered alfalfa is planted near their alfalfa fields to bring suit, or

1 until their fields are contaminated with genetically engineered seed mixed with non-
 2 engineered seed. “[T]o require actual evidence of environmental harm, rather than an
 3 increased risk based on a violation of the statute, misunderstands the nature of environmental
 4 harm and would undermine the policy of the . . . Act.” Central Delta Water Agency v.
 5 United States, 306 F.3d 947, 948 (9th Cir. 2002). “[T]he possibility of future injury may be
 6 sufficient to confer standing on plaintiffs; threatened injury constitutes ‘injury in fact.’” Id. at
 7 947. As is explained above, plaintiffs have established a “reasonable probability” that their
 8 organic and conventional alfalfa crops will be infected with the engineered gene, especially
 9 given the undisputed concentration of alfalfa seed farms. They have also established the
 10 reasonable probability of the development of additional glyphosate resistant weeds. Such
 11 threatened injury is sufficient to confer standing. The law does not require plaintiffs to meet
 12 the impossible task of proving that their alfalfa farms have already been contaminated. See
 13 Citizens for Better Forestry v. U.S. Dep’t of Agriculture, 341 F.3d 961, 971-72 (9th Cir.
 14 2003) (“Were we to agree . . . that a NEPA plaintiff’s standing depends on ‘proof’ that the
 15 challenged federal project will have particular environmental effects, we would in essence be
 16 requiring that the plaintiff conduct the same environmental investigation that he seeks in his
 17 suit to compel the agency to undertake.”) (internal quotation marks and citation omitted).

18 Finally, at oral argument the Court asked the government who would have standing if,
 19 as it asserts, even the organic and conventional alfalfa farmers do not. The government
 20 responded that in its view no one has standing to challenge the deregulation decision in light
 21 of APHIS’s finding that the engineered gene is harmless. As the Court explained, supra, it
 22 does not agree with APHIS’s cramped reading of what constitutes an environmental impact.

23 **II. OTHER CLAIMS**

24 Since the Court has concluded that APHIS must prepare an EIS before approving the
 25 petition to deregulate Roundup Ready alfalfa, it need not address plaintiffs’ claims under the
 26 ESA and PPA. The agency’s decision may be different after it gathers the relevant data and
 27 considers the public’s comments on such data; accordingly, the Court will not now decide the
 28 additional grounds for challenging the agency’s decision. See Thomas v. Petersen, 753 F.2d

754, 761 n.4 (9th Cir. 1985). Plaintiffs' ESA and PPA claims are therefore dismissed without prejudice.

CONCLUSION

NEPA "is our basic national charter for protection of the environment." 40 C.F.R. § 1500.1(a). "NEPA emphasizes the importance of coherent and comprehensive up-front environmental analysis to ensure informed decision making to the end that 'the agency will not act on incomplete information, only to regret its decision after it is too late to correct.'" Blue Mountains Biodiversity Project, 161 F.3d at 1216 (quoting Marsh v. Oregon Natural Resources Council, 490 U.S. 360, 371 (1989)). "An EIS is required of an agency in order that it explore, more thoroughly than an EA, the environmental consequences of a proposed action whenever 'substantial questions are raised as to whether a project *may* cause significant [environmental] degradation.'" Id. (internal quotation marks and citation omitted).

"That is exactly the circumstances of this case." Id. Substantial questions are raised as to whether (1) the deregulation of Roundup Ready alfalfa without any geographic restrictions will lead to the transmission of the engineered gene to organic and conventional alfalfa; (2) the possible extent of such transmission; and (3) farmers' ability to protect their crops from acquiring the genetically engineered gene. Substantial questions are also raised as to the extent to which Roundup Ready alfalfa will contribute to the development of Roundup-resistant weeds, especially when considered in conjunction with the already deregulated and soon-to-be deregulated Roundup Ready crops, and as to how farmers will address such weeds. APHIS failed to answer these substantial questions, concluding instead that any environmental impact is insignificant because gene transmission is the problem of the organic and conventional farmers and weeds always develop resistance to herbicides. As such reasons are not "convincing" and do not demonstrate that the agency took a "hard look" at the potential environmental impacts of its deregulation decision, plaintiffs' motion for summary judgment on its NEPA claim that APHIS is required to prepare an EIS is GRANTED. Defendants' cross motion on the NEPA claim is DENIED, and the parties'

1 cross-motions on the other claims are dismissed as moot in light of the Court's dismissal of
2 those claims without prejudice.

3 The parties shall meet and confer and submit a proposed Judgment to the Court on or
4 before February 26, 2007.

5 **IT IS SO ORDERED.**

6 Dated: Feb. 13, 2007

7 /s/
8 CHARLES R. BREYER
9 UNITED STATES DISTRICT JUDGE
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United States District Court
For the Northern District of California